TESTIMONY OF ROBERT W. CRANDALL, Ph.D.

SENIOR FELLOW, THE BROOKINGS INSTITUTION

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I. QUALIFICATIONS

Since 1978, I have been a Senior Fellow in Economic Studies at the Brookings Institution. My participation in this proceeding, however, is as a private consultant to the Joint Sports Claimants, not as an employee of the Brookings Institution. My views should not be taken to reflect those of the Brookings Institution, its staff, or its trustees.

From 1966 through 1974, I was on the faculty of the Massachusetts Institute of Technology, serving as Assistant Professor and Associate Professor of Economics. For the next year, I served on the staff of Commissioner Glen Robinson of the Federal Communications Commission. From late 1975 through January 1978, I was with the Council on Wage and Price Stability in the Executive Office of the President, where I served as Assistant Director, Deputy Director, and Acting Director.

I have served as a consultant to several government agencies and participated in a variety of government advisory panels. In 1967-68, I was a consultant to the Justice Department on a variety of network television and motion picture issues. In 1978-79, I served as a consultant to the Federal Communications Commission on the deregulation of signal carriage rules for cable television. I have also served as a consultant to several clients on matters relating to copyright and product licensing issues -- including the National Cable Television Association, the three major television broadcast networks, and other cable and broadcast industry clients.

My research has focused on a number of regulatory issues affecting a variety of industries. I have published books and articles on the steel industry, the telephone industry, the automobile industry, health-safety-environmental regulation, broadcast regulation, and cable television regulation. In 1971 and 1972 I published articles on the financial-interest/syndication rules in The Journal of Law and Economics and the Bell Journal of Economics. In 1974, I coauthored an article on cable television profitability that also was published in the Bell Journal of Economics, and I published another article on cable television profitability in The Journal of Business. In 1974, I also published an article on the economics of network television in Public Policy. In 1978, I published an article on the economic effect of television broadcast regulation in Regulation. In 1981, Stanley Besen and I coauthored a paper on cable television regulation that was published in Law and Contemporary Problems. In 1990, I conducted a number of empirical studies of the cable television industry that were submitted in various FCC proceedings on behalf of TCI and are being incorporated into a chapter in Bruce Owen and Steven Wildman, Video Economics to be published by Harvard University Press in 1992.

A copy of my curriculum vitae is attached.

II. INTRODUCTION

I have been retained by the Joint Sports Claimants to express my views on the criticisms of the 1983 Browne, Bortz & Coddington (BBC) study raised by Dr. Stanley Besen on behalf of MPAA during the Tribunal's 1983 proceeding. I have also been asked to evaluate, in light of those criticisms, the 1989 study by Bortz and the study of distant-signal viewing presented by the MPAA in the 1983 proceeding.

A. The BBC and Bortz Studies. In the 1983 proceeding, the Joint Sports Claimants submitted a constant sum study by BBC that reflected the results of a survey of cable operators. This survey was designed to elicit directly from cable operators their comparative valuation of various programming types on the distant broadcast signals imported for retransmission on their systems in 1983. The BBC study showed that cable operators allocated 36.1 percent of the value of the programming they received on these signals to live professional and collegiate sports, 30.2 percent to movies, 18.6 percent to syndicated series, 12.1 percent to news and public affairs programming, and 3.1 percent to public-television programming. Similar results were obtained in the 1989 survey and reported in the Bortz study.

B. The MPAA Viewing Study. The results of the BBC survey contrasted with the results of a study of cable viewing submitted by the MPAA in the 1983 proceeding. This study used A.C. Nielsen data on the size of the audience generated by various program types on distant signals imported by cable systems throughout the country. Viewing was defined as the number of distant cable households watching each program type multiplied by the number of hours of that programming type. The study tabulated in this manner the total number of household hours of viewing of each program category on 117 imported distant signals during each of four Nielsen sweep periods. This MPAA Viewing study concluded that approximately 80 percent of the hours of distant-signal viewing by cable households was represented by the viewing of movies and syndicated series, 10.75 percent by viewing of sports, and under 10 percent by viewing of all other program types.

C. Criticisms of the BBC Study. Dr. Stanley Besen testified in the 1983 proceeding that the BBC study did not provide an adequate framework for estimating the "marketplace value" of the various program types. Besen criticized the BBC study for two reasons. First, the cable operator survey responses reflected allocations of total program values, but he contended that the appropriate measure of market value is the marginal contribution of each program to the value of the cable system's offering. Second, the BBC cable operators' study did not account for market supply effects, particularly those related to the fractionalization of audiences caused by distant-signal importation.

In its 1983 decision, the Tribunal agreed with Besen's criticism. The Notice of Final Determination stated at FR 12809:

> " We agree with Dr. Besen's criticism of attitudinal surveys that asking cable operators and/or subscribers to [evaluate] programs does not take supply into account, so that all we are measuring is the benefit side of the equation, not marketplace value. We also agree with Dr. Besen's belief that the respondents were probably basing their responses on the total value of these programs to them, and not the marginal value of the programs to them on distant broadcast signals."

In the same Final Determination at FR 12811, the Tribunal recognized that the supply effects are more likely to impact the Joint Sports Claimants than other programming interests:

> " We note, however, that Dr. Besen's view about the critical role supply plays in the marketplace equation probably affects sports more than most claimant groups. The attitudinal surveys do not ask operators or subscribers to take into account the limit on the supply of major league and college

> games, so that we believe the respondents, free from that consideration, express a desire for more sports programming than available. The Nielsen data, which is made up of the actual supply of sports programs, and the actual viewing behavior, continues to provide a ballast for what might be a higher consideration for sports."

Partly because of Besen's criticisms, the Tribunal gave greater weight in its 1983 Final Determination to the MPAA viewing study than to the BBC cable-operator valuation study.

III. SUMMARY OF CONCLUSIONS

The Bortz survey provides information that an economist would consider useful in assessing the relative value of distant-signal programming categories. It measures the relative "total value" of each type of programming. Total value is related to marginal value by the price sensitivity or "elasticity" of cable operator demand for each program type. If the price sensitivity of cable operators' demand for distant-signal programming is the same for all programming types, the relative total values will be equal to the relative marginal values of these programming categories. I am unaware of any evidence suggesting that the price sensitivity of cable operator demand for programming varies across program types. Therefore, I believe that the Bortz study provides the best available measure of relative marketplace values of the distant signal program categories.

Furthermore, and regardless of the relative elasticities of cable operator demand for programming, the Bortz study's estimates of total value are a valid measure of marketplace value if the cable operator is faced with an all-or-nothing choice for each program type. In other words, if each "Phase I" group of program suppliers were allowed to bargain collectively with cable operators, the maximum license fees each could obtain from the cable industry would be equal to the total value of each program type (as reflected in the Bortz study).

In contrast, the MPAA viewing study conveys no information that is relevant to the estimation of either total or marginal value of program types. It simply looks at audiences and the quantity of programs broadcast. Such viewing data are not a measure of marketplace value.

I agree with Besen that the effects of supply on marketplace value were not measured in the BBC operator survey. However, the MPAA viewing study also ignores supply effects. Moreover, Besen presented no evidence that the supply effects are more important for movies or syndicated programming than for sports. In fact, I believe that these supply effects are likely to be more important for sports than for movies and syndicated series because the loss of exclusivity in the initial exhibition of a sports event cannot be recaptured in frequent reruns of the event. I therefore believe that any consideration of supply effects would not reduce the value of sports vis-a-vis movies and syndicated programs (as reflected in the Bortz study).

In sum, I do not believe that there is any proper basis on which an economist would accord greater weight to the MPAA viewing study than to the Bortz study as a measure of marketplace value. The MPAA viewing study is in fact vulnerable to the very criticisms raised by Besen in the 1983 proceeding. Moreover, the Bortz study (unlike the MPAA viewing study) does provide useful information about relative values of the various program types.

IV. DISCUSSION OF CONCLUSIONS.

The compulsory copyright license for imported distant signals was imposed by Congress as a substitute for direct bargaining between cable systems and individual copyright owners over a very large number of programs that could be retransmitted by cable systems. I agree with Besen that the allocation of the royalties collected from cable systems should reflect the Tribunal's judgment of how a market would distribute the royalties in the absence of a compulsory license. Under traditional economic theory, this requires an analysis of the demand by cable sytems for, and the supply by copyright owners of, various program types to cable systems.

A. Demand

1. The Concepts of Marginal Value and Total Value. A cable system obtains its revenues from basic cable subscriber fees, premium service subscriber fees, pay-per-view fees, and advertising. Imported distant broadcast signals may be offered on either a basic tier or an enhanced basic tier of service, but they are not generally offered as premium (pay) services nor in pay-per-view format. Moreover, cable systems do not offer their own advertising spots on imported distant broadcast signals.

The value of an imported distant program to a cable operator, therefore, must be measured in terms of the additional or "marginal" subscriber revenues it generates less any costs of importing that program. In a free market, absent compulsory licensing, each cable operator would be willing to pay each program's copyright owner an amount not exceeding this marginal contribution to net subscriber revenues. The sum of these marginal values across all imported programs would then equal the total amount that a cable operator would be willing to pay for all distant signals.

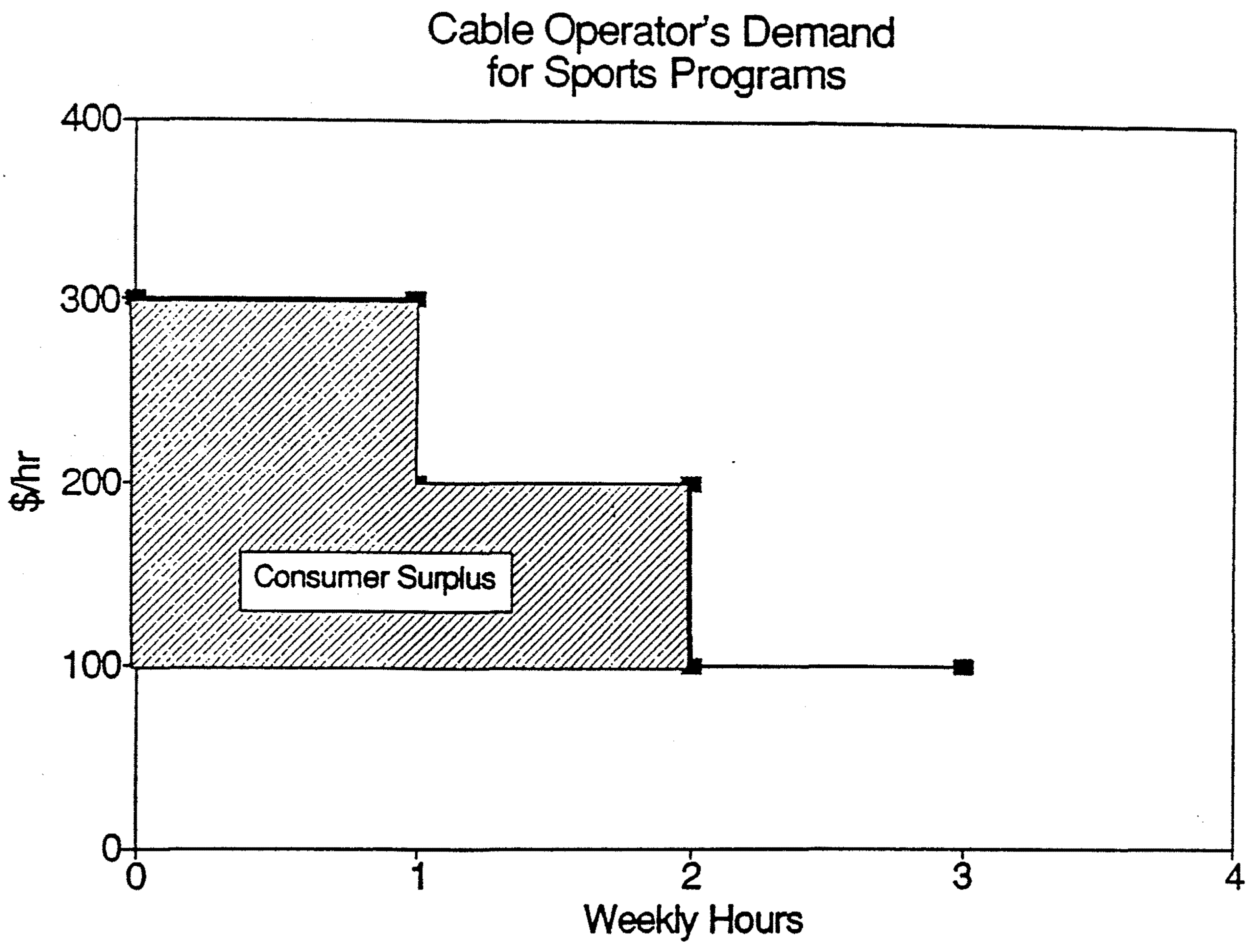
It should be noted that these marginal program values are related to the total value of all such programs. In his testimony in the 1983 proceeding, Besen used a numerical example to demonstrate that the total value of all "entertainment" or "informational" programs scheduled by a cable operator is not simply the marginal value of each type multiplied by the number of programs carried because the marginal value of an hour of any program type to the cable operator declines as he increases the number such programs that he carries. However, as Besen noted, the total value of such programming is equal to the sum of the marginal values of all such programming. A simple graphical exposition of Besen's point will assist in understanding its relevance.

In the attached Figure 1, the downward-sloping line reflects a hypothetical example of the relationship between the marginal value of weekly "sports" program hours to a cable operator and the number of hours of sports carried by the cable system per week. This "demand curve", in the economist's parlance, provides a representation of how much sports the operator will schedule at various market prices for an hour of sports programming. In Figure 1, the demand curve is shown as a stair-stepped line because in this hypothetical case I assume that sports programs can only be bought in one-hour segments. It is downward sloping because I have invoked the usual assumption that the marginal value of additional hours of sports (or any other program type) declines as more and more of it is exhibited.

For instance, Figure 1 shows that at a price of $300 per hour, the cable operator will accept only one hour per week. If the price falls to $200 per hour, he takes two hours of sports per week and pays the copyright owners $400 ; if it falls to $100, he takes three hours per week and pays $300 to the copyright owners.

The marginal value of the third hour of sports in Figure 1 is $100, and if the price is $100 per hour, the cable operator pays

Figure 1

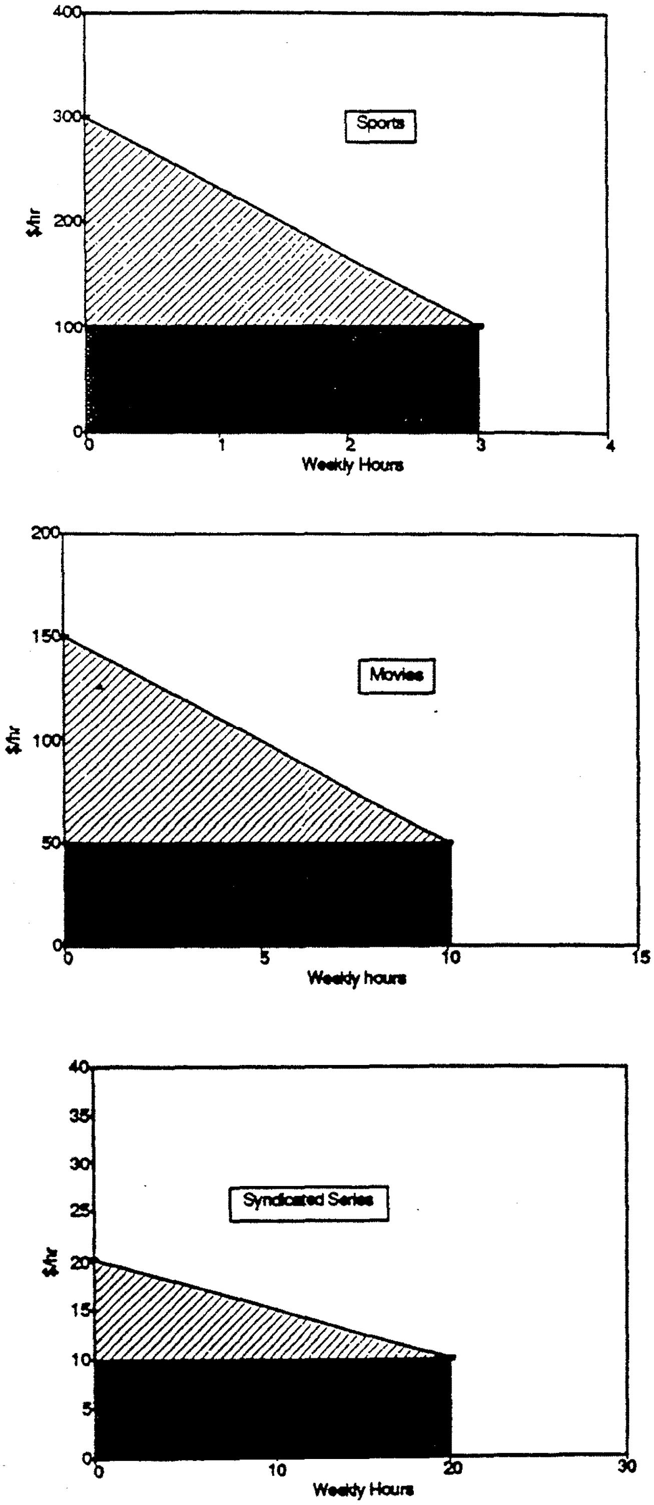

Cable Operator's Demand
for Sports Programs
400
300
200
100
0
$/hr
Consumer Surplus
0
1
2
3
4
Weekly Hours

$300 for three hours of sports per week. However, the <u>total</u> value of sports to the operator is equal to $300 for the first hour plus $200 for the second hour plus $100 for the third hour, or $600 in total for three hours per week. If a single copyright owner controlled all sports available to the cable operator, he could demand and get $600 from the cable operator for the three hours per week. Thus, marginal value and total value are quite directly related. The $300 by which total value exceeds the total copyright payments for three hours at $100 per hour is referred to as "consumers' surplus" and is shown in Figure 1 by the area under the demand curve above the $100 price. Consumers' surplus is the amount that consumers (in this case, the cable operators) would be willing to pay over and above the marketplace value if they were confronted with an all-or-nothing choice for the programs.

It is a simple matter to repeat this analysis for the cable operator's decision across three program types -- sports, movies, and syndicated series -- as in Figure 2. In this example, I assume that programs can be bought in any length desired; hence, the demand curves are smooth lines.

In the hypothetical case shown in Figure 2, sports programs are priced in the market at $100 per hour; movies at $50 per hour; and syndicated series (reruns) at $10 per hour. The cable operator chooses three hours of sports, ten hours of movies, and twenty hours of syndicated series. His total program payments equal $1000 per month, of which 30 percent ($300) represents the relative marketplace value of sports, 50 percent ($500) represents the

FIGURE 2:
Total Value and Marginal Value of Different Program Types Imported by Cable Operators



relative marketplace value of movies, and 20 percent ($200) represents the relative marketplace value of syndicated series.

If each program type is offered by numerous sellers independently, the market prices of sports, movies, and syndicated series in Figure 2 are equal to $100, $50, and $10 per hour, respectively. If, however, the cable operator is asked how much he would pay for each on an all-or-nothing basis, he would offer $600, $1000, and $400 for three hours of sports, ten hours of movies, and twenty hours of syndicated series, respectively. These amounts are equal to the areas under the respective demand curves for the three hours of sports, ten hours of movies, and twenty hours of syndicated series. They may be calculated by summing the marginal values of each additional hour over all hours of each program type.

It is this latter measure of value -- the total value as represented by the area under the demand curves -- that is captured by the Bortz survey.

2. <u>The Relationship Between the Bortz Study and Marketplace Value</u>. The estimates of relative total value in the Bortz survey are related to the measure of marginal value that Besen sought in determining marketplace value. The missing link in such a relationship is a measure of the elasticity of the various demand curves -- <u>i.e.</u>, the rate at which the quantity demanded increases with a given rate of decline in price. If these elasticities are the same for each program type, the relative total values will be equal to the relative marginal values. Note that, as drawn in

Figure 2, the relative total values are equal to the relative marginal values -- 30 percent, 50 percent, and 20 percent for sports, movies, and syndicated series, respectively. This result obtains because I have drawn the three demand curves under the assumption that they are linear and have identical price elasticities at the equilibrium market prices.

The relationship between the total and marginal values for each program category can be demonstrated graphically in Figure 2. The marginal value is given by the price of each program; marketplace value is equal to the price multiplied by the quantity of programs carried -- or the rectangular shaded area under the demand curve. Total value is equal to the sum of this shaded rectangular area and the cross-hatched area under the demand curve. Thus, the ratio of total value to marketplace value is equal to the sum of the two areas divided by the shaded area alone. This ratio will be the same for all program types if their price elasticities of demand are identical.

The Bortz estimate of relative total value will be greater than the marketplace value of a given program type only if cable operators' demand for this type of programming is less price elastic (i.e., less price sensitive) than the demand for other program types. Therefore, any conclusion that the Joint Sports' share should be less than the estimate of relative total value from the Bortz survey must rest upon the implicit belief that cable operators' demand for sports programming is less price sensitive than the demand for other programming. Put another way, such a judgment must reflect the view that the market's offering additional sports programs would drive the price of these programs down more rapidly than would similar proportional increases in movies, syndicated series, informational programs, or devotional programs.

I am unaware of any evidence that suggests that cable operators' demand for sports is less price sensitive than their demand for other programming. Nor am I aware of any evidence that would indirectly support such a proposition -- for instance, that subscribers' willingness to pay for additional sports programming declines much more rapidly than their willingness to pay for an expansion in other programming types. In light of the foregoing, I believe that the Bortz study estimates of relative total value are a good measure of relative marketplace value of the various program types.

Furthermore, the same conclusion may be reached even if there were significant differences in the elasticity of demand for sports and other programming. Total value is the amount that the cable operator would pay for a program type if offered an all-or-nothing choice. It is therefore relevant to the calculation of a copyright royalty in a situation in which the suppliers of each program type bargain collectively with cable operators. If each "Phase-I" program supplier group were allowed to bargain collectively with cable operators, the marginal values of the different program types would equal their total values (as measured in the Bortz study).

3. The MPAA Viewing Study and Marketplace Value. The MPAA viewing study offers evidence on the audiences attracted by various types of programs imported by cable operators on distant signals as well as the amount of time those program types are broadcast. But the cable operator does not sell audiences in these programs because his revenues do not derive from advertising sales on imported distant signals. The marginal value of these programs to cable operators derives from the additional subscriber revenues they generate. These additional revenues are not necessarily related to the audiences they attract. A simple example demonstrates this lack of correspondence.

Assume that a cable operator were able to attract a 10 percent increase in subscribers by offering a sports channel that provided nothing but one hour per month of championship boxing matches that, in turn, were only watched by 25 percent of the cable system's subscribers during this single hour per month. Furthermore, assume that this additional 10 percent subscribed to cable solely because of the boxing channel.

Now, suppose that the operator could also import a distant network-affiliated broadcast signal that offered only a few hours a week of old syndicated programs in addition to the network fare already available on the local station carried by the cable system. The imported network broadcast station might actually attract fairly large audiences averaging, say, 2 percent of the cable system's subscribers over a monthly broadcasting schedule of about 500 hours. Few if any additional subscribers would likely be attracted to the cable system by this duplicate network signal, but its total viewing per month, as measured by the MPAA viewing study, would be forty times (2 percent times 500 hours compared to 25 percent times 1 hour) as great as that of the boxing channel despite the fact that its value to the cable operator is very close to zero. On the other hand, the low-audience boxing channel could have a marginal value of as much as 9 percent (10 percent additional subscribers divided by 110 percent) of the cable system's total monthly subscriber revenues, depending on the cost of attaching new subscribers to the system. The above example was constructed to demonstrate a point: the marginal value of a program to a cable operator is not necessarily related to the audience of the program. A program is valuable because it attracts new subscribers or raises the rate that the operator may charge existing subscribers.

Because average program audiences do not reflect the marginal value of programs to cable operators, the MPAA viewing study fails to provide a reliable estimate of marketplace value. This study falls prey to Besen's own critique.

B. Supply

Dr. Besen's second criticism of the BBC cable operator study was that it failed to account for the effects of "supply." Besen points out quite correctly that a copyright owner would not offer his program to a cable operator unless the royalty offsets his potential loss of income in that cable market from other media. In essence, this means that a cable operator would have to compensate the copyright owner for an amount at least equal to the reduction in the value of the program on other media caused by the cable importation. To the extent that one type of programming is impacted more heavily than the others by such importation, he argues that its royalty share should be adjusted to reflect it.

For at least two reasons, however, Besen's argument provided no basis for reducing the relative value assigned to sports vis-a-vis movies and syndicated programs as measured in the Bortz study.

First, Besen felt that the supply impacts were likely to be of the same importance for sports, movies, and syndicated series. Thus, he could find no basis for adjusting the comparative valuations of these three program types because of such supply effects.

Second, Besen's conclusion on the equivalent impact of supply effects on movies or syndicated series and sports does not account for the ephemeral value of a live sporting event. Most sports programs do not have a large number of reruns. As a result, any dilution of audience during the first or second exhibition is likely to have a more damaging impact than the dilution of audience of, say, the fourth television exhibition of a motion picture. Since the film may be exhibited another four or five times on cable, network television, or local television, the effect of audience dilution through imported distant signals is likely to be less damaging for movies than for sports programs.

Finally, Besen's supply criticism is also applicable to the MPAA study, which similarly fails to account for supply effects. The MPAA study does provide some measure of the quantity of programming broadcast by distant signals and "consumed" by cable subscribers. However, it does not measure the effect that importation of the various program types would have on the price that copyright owners would demand.

CURRICULUM VITAE

ROBERT W. CRANDALL

CURRENT POSITION:

Senior Fellow, The Brookings Institution, 1978 - Present
Fields of Specialization: Industrial Organization, Antitrust Policy, Regulation

PREVIOUS POSITIONS:

Adjunct Professor, School of Public Affairs, University of Maryland, 1987 - Present
Deputy Director, Council on Wage and Price Stability, 1977 - 1978
Acting Director, Council on Wage and Price Stability, 1977
Adjunct Associate Professor of Economics, George Washington University, 1975 - 1977
Assistant Director, Council on Wage and Price Stability, 1975 - 1977
Associate Professor of Economics, M.I.T., 1972 - 1974
Assistant Professor of Economics, M.I.T., 1966 - 1972
Johnson Research Fellow, The Brookings Institution, 1965 - 1966
Instructor, Northwestern University, 1964 - 1965
Consultant to Environmental Protection Agency, Antitrust Division Federal Trade Commission, Treasury Department, various years

EDUCATION:

Ph.D., Economics, Northwestern University, 1968
M.A., Economics, Northwestern University, 1965
A.B., Economics, University of Cincinnati, 1962

HONORS and AWARDS:

Phi Beta Kappa

MEMBERSHIPS:

American Economic Association
Board of Directors, Baltimore Life Insurance Company
Board of Directors, Home Owners Warranty Corporation
Board of Directors, Economists Incorporated

PERSONAL DATA:

Place and Date of Birth: Akron, Ohio; February 28, 1940

Home Address: 5100 - 38th Street, NW
Washington, DC 20016

PUBLICATIONS:

After the Breakup: The U.S. Telecommunications Industry in a More Competitive Era. Washington, DC: The Brookings Institution, 1991.

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Certificate of Service

I hereby certify that on Monday, February 12, 2018 I provided a true and correct copy of the Robert Crandall Written Direct Testimony (JSC Written Direct Statement Vol. II) to the following:

American Society of Composers, Authors and Publishers (ASCAP), represented by Sam Mosenkis served via Electronic Service at smosenkis@ascap.com

National Association of Broadcasters (NAB), represented by Ann Mace served via Electronic Service at amace@crowell.com

SESAC, Inc., represented by John C. Beiter served via Electronic Service at jbeiter@lsglegal.com

Broadcast Music, Inc. (BMI), represented by Janet Fries served via Electronic Service at janet.fries@dbr.com

Multigroup Claimants, represented by Brian D Boydston served via Electronic Service at brianb@ix.netcom.com

Spanish Language Producers, represented by Brian D Boydston served via Electronic Service at brianb@ix.netcom.com

Devotional Claimants, represented by Jeannette M. Carmadella served via Electronic Service at jeannette@lutzker.com

Canadian Claimants Group, represented by Lawrence K Satterfield served via Electronic Service at lksatterfield@satterfield-pllc.com

MPAA-represented Program Suppliers, represented by Lucy H Plovnick served via Electronic Service at lhp@msk.com

Public Broadcasting Service (PBS), represented by Dustin Cho served via Electronic Service at dcho@cov.com

National Public Radio, Inc. (NPR), represented by Gregory A Lewis served via Electronic Service at glewis@npr.org

Signed: /s/ Michael E Kientzle